



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,385	06/13/2001	Satsuki Tsukuda	56087 (70551)	5189

21874 7590 06/03/2004

EDWARDS & ANGELL, LLP
P.O. BOX 55874
BOSTON, MA 02205

EXAMINER

BATTAGLIA, MICHAEL V

ART UNIT	PAPER NUMBER
----------	--------------

2652

8

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/880,385

Applicant(s)

TSUKUDA ET AL.

Examiner

Michael V Battaglia

Art Unit

2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 7-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This action, dated May 19, 2004, is in response to Applicant's election, filed March 29, 2004. Claims 1-17 are pending.

Election/Restrictions

1. Applicant's election of Species a (claims 1-6) in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 7-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected Species b-o, there being no allowable generic or linking claim.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 6 recites the limitation "said two elastic supporting members" in line 2. There is insufficient antecedent basis for this limitation in the claim. The limitation will be interpreted as - two of said plurality of elastic supporting members

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2 are rejected under 35 U.S.C. 102(e) as being anticipated by Mohri et al (hereafter Mohri) (US 6,134,058).

In regard to claim 1, Mohri discloses a tilt correction method of a movable portion (Figs. 1A and 3A-3D, element 150) for correcting tilt of said movable portion, said movable portion being connected to a fixed portion (Fig. 1A, element 8) by a plurality of elastic supporting members (Figs. 1A and 3A-3D, element 4) and displaceably arranged in a direction orthogonal to a longitudinal direction of an elastic supporting member (hereinafter referred to as an orthogonal direction) (Figs. 1A and 3B-3D, element Fo and Col. 6, lines 21-23 and 28-30), wherein the tilt of said movable portion is corrected by varying expansion/contraction amounts of said plurality of

Art Unit: 2652

elastic supporting members (Figs. 3B-3D and Col. 7, lines 35-50). The suspension wires (Figs. 1A and 3A-3D, element 4) are interpreted as elastic supporting members because the suspension wires return to the initial state shown in Fig. 3B when no forces are acting upon them (Col. 7, lines 34-35). The tilt correction method of Mohri corrects tilt of the moveable portion with respect to a disc (Col. 4, lines 26-31), which includes tilt of the moveable portion caused when said movable portion is moved in said orthogonal direction.

In regard to claim 2, Mohri discloses that each of said plurality of elastic supporting members has at least one bent portion (Figs. 3B-3D, element 4A), and the tilt of said movable portion is corrected by varying expansion/contraction amounts of said bent portions of said elastic supporting members (Figs. 3B-3D and Col. 7, lines 35-50) when said movable portion is moved and any other time that tilt is induced.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hori (US 6,362,927) in view of Mohri.

In regard to claim 1, Hori discloses a movable portion (Figs. 1, 2A and 2B, elements 5 and 6) being connected to a fixed portion (Fig. 1, element 2) by a plurality of elastic supporting members (Figs. 1, 2A and 2B, elements 3 and 4) and displaceably arranged in a direction

Art Unit: 2652

orthogonal to a longitudinal direction of an elastic supporting member (hereinafter referred to as an orthogonal direction) (Col. 1, lines 37-41). Hori further discloses that tilt of said moveable portion is caused when said movable portion is moved in said orthogonal direction (Figs. 2A and 2B and Col. 1, lines 41-46). Hori does not disclose that the tilt of said movable portion is corrected by varying expansion/contraction amounts of said plurality of elastic supporting members caused when said movable portion is moved in said orthogonal direction.

Mohri discloses a tilt correction method of a movable portion (Figs. 1A and 3A-3D, element 150) for correcting tilt of said movable portion, said movable portion being connected to a fixed portion (Fig. 1A, element 8) by a plurality of elastic supporting members (Figs. 1A and 3A-3D, element 4) and displaceably arranged in said orthogonal direction (Figs. 1A and 3B-3D, element Fo and Col. 6, lines 21-23 and 28-30), wherein the tilt of said movable portion is corrected by varying expansion/contraction amounts of said plurality of elastic supporting members (Figs. 3B-3D and Col. 7, lines 35-50). The tilt correction method of Mohri corrects tilt of the moveable portion with respect to a disc (Col. 4, lines 26-31), which includes tilt of the moveable portion caused when said movable portion is moved in said orthogonal direction.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the plurality of elastic supporting members of Hori with the plurality of elastic supporting members of Mohri and to correct the tilt of the moveable portion of Hori caused when the movable portion is moved in the orthogonal direction by varying expansion/contraction amounts of the plurality of elastic supporting members as suggested by Mohri, the motivation being to correct tilt of a moveable portion caused when the movable portion is moved in the orthogonal direction.

In regard to claim 2, Mohri discloses that each of said plurality of elastic supporting members has at least one bent portion (Figs. 3B-3D, element 4A), and the tilt of said movable portion is corrected by varying expansion/contraction amounts of said bent portions of said elastic supporting members (Figs. 3B-3D and Col. 7, lines 35-50) when said movable portion is moved.

In regard to claim 3, Hori discloses a movable portion (Figs. 1 and 2A-3B, element 5) holding an objective lens (Figs. 1 and 2A-3B, element 6), a fixed portion (Fig. 1, element 2), and a plurality of elastic supporting members (Figs. 1 and 2A-3B, elements 3 and 4) connecting said movable portion and said fixed portion for elastically supporting said movable portion in a manner displaceable at least in the focus direction (Col. 1, lines 37-41). Hori further discloses that moments are produced from deflection of said elastic supporting members (Figs. 2A-3B and Col. 1, lines 41-46). Hori does not disclose that the elastic supporting member has at least one bent portion bent approximately in the focus direction, and said bent portions of said elastic supporting members arranged in parallel in the focus direction are adjusted to cause expansion/contraction of said elastic supporting members in a direction offsetting a moment produced from deflection of said elastic supporting member.

Mohri discloses a tilt correction method of an objective lens (Figs. 1A and 3A-3D, element 1) for an optical disk for correcting tilt of a movable portion (Figs. 1A and 3A-3D, element 150) with respect to a disc (Col. 4, lines 26-31), which includes tilt of the moveable portion caused when moved in a focus direction, said movable portion holding said objective lens, a fixed portion (Fig. 1A, element 8), and a plurality of elastic supporting members (Figs. 1A and 3A-3D, element 4) connecting said movable portion and said fixed portion for elastically supporting said movable portion in a manner displaceable at least in the focus direction (Figs. 1A and 3B-3D, element Fo and Col. 6, lines 21-23 and 28-30) are being provided, wherein said elastic supporting member has

Art Unit: 2652

at least one bent portion (Figs. 3B-3D, element 4A) bent approximately in the focus direction, and said bent portions of said elastic supporting members arranged in parallel in the focus direction (Fig. 3B, element 4A) are adjusted to cause expansion/contraction of said elastic supporting members in a direction offsetting a moment (Figs. 3B-3D and Col. 7, lines 35-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the plurality of elastic supporting members of Hori with the plurality of elastic supporting members having at least one bent portion bent approximately in the focus direction and arranged in parallel in the focus direction of Mohri and to correct the tilt of the moveable portion of Hori caused when the movable portion is moved in the focus direction and offset the moment produced from deflection of the elastic supporting member by adjusting the bent portions to cause expansion/contraction of the plurality of elastic supporting members as suggested by Mohri, the motivation being to correct tilt of a moveable portion caused when the movable portion is moved in the orthogonal direction and offset the moment produced from deflection of the elastic supporting member.

In regard to claim 4, Hori discloses an objective lens driving device for an optical disk including a movable portion (Figs. 1 and 2A-3B, element 5) holding the objective lens (Figs. 1 and 2A-3B, element 6), a fixed portion (Fig. 1, element 2), and a plurality of elastic supporting members (Figs. 1 and 2A-3B, elements 3 and 4) connecting said movable portion and said fixed portion and elastically supporting said movable portion in a manner displaceable at least in a focus direction (Col. 1, lines 37-41). Hori further discloses that tilt of said movable portion is caused when moved in the focus direction and a moment is produced from deflection of said elastic supporting member (Figs. 2A and 2B and Col. 1, lines 41-46). Hori does not disclose a correction control means for controlling tilt of said movable portion caused when moved in the focus

Art Unit: 2652

direction by adjusting deflections of said elastic supporting members arranged in parallel in the focus direction to cause expansion/contraction of said elastic supporting members in a direction offsetting a moment produced from deflection of said elastic supporting member.

Mohri discloses an objective lens driving device for an optical disk including a movable portion (Figs. 1A and 3A-3D, element 150) holding the objective lens (Figs. 1A and 3A-3D, element 1), a fixed portion (Fig. 1A, element 8), and a plurality of elastic supporting members (Figs. 1A and 3A-3D, element 4) connecting said movable portion and said fixed portion and elastically supporting said movable portion in a manner displaceable at least in a focus direction (Figs. 1A and 3B-3D, element Fo and Col. 6, lines 21-23 and 28-30), comprising correction control means for controlling tilt of said movable portion with respect to a disc (Col. 4, lines 26-31), which includes tilt of the moveable portion caused when moved in the focus direction by adjusting deflections of said elastic supporting members arranged in parallel in the focus direction to cause expansion/contraction of said elastic supporting members in a direction offsetting a moment (Figs. 3B-3D and Col. 7, lines 35-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the plurality of elastic supporting members of Hori with the plurality of elastic supporting members of Mohri and to control tilt of the movable portion of Hori caused when moved in the focus direction by adjusting deflections of said elastic supporting members arranged in parallel in the focus direction to cause expansion/contraction of said elastic supporting members in a direction offsetting a moment produced from deflection of said elastic supporting member using the correction control means of Mohri, the motivation being to control tilt of the movable portion caused when moved in the focus direction.

In regard to claim 5, Mohri discloses that said elastic supporting member has at least one bent portion (Figs. 3B-3D) bent approximately in the focus direction for adjustment of deflection (Col. 7, lines 35-50).

In regard to claim 6, Mohri discloses that said two elastic supporting members arranged in parallel approximately in the focus direction are symmetric about a surface perpendicular to the focus direction (Fig. 3B).

Citation of Relevant Prior Art

7. Marino (US 5,768,034) discloses that tilting causes motion errors as an actuator is moved in the focus direction (Col. 1) and applying force to cause tension and compression in flexures and cause them to deflect and move in the focus direction (Col. 3). Uekusa et al (US 6,163,416) metal wires that are used as elastic members (Col. 6). Kasahara et al (US 4,948,230) discloses that a rotational moment is produced which causes the objective lens to tilt when the objective lens is moved in the focus direction (Col. 3). Ijima et al (US 6,665,238) discloses a moveable portion holding an objective lens that is moveable in the focus direction and is connected to a fixed portion by a plurality of elastic supporters that have a bent portion bent in the focus direction (Fig. 2).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V Battaglia whose telephone number is (703) 305-4534. The examiner can normally be reached on 5-4/9 Plan with 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "M. Battaglia". The signature is fluid and cursive, with the first letter of the last name being a large, stylized capital "B".

Michael Battaglia